<u>Amendments to the Claims:</u>

Please amend claim 10, and add claims 38-56, in accordance with the list of claims that begins on the following page, and which replaces all prior versions of claims in the application.

List of Claims:

10.   (currently amended) A ~~signal bearing~~ <u>computer readable</u> medium tangibly embodying a program of machine-readable instructions executable by a digital processing apparatus to perform operations for restoring data, the operations comprising:

<u>tracking data access patterns for blocks of the data;</u>

<u>backing up the data;</u>

<u>wherein backing up the data includes storing with the data, data access pattern metadata obtained by tracking the data access patterns;</u>

receiving a request for at least a portion of the data;

creating a directory entry for the data in a virtual file system;

allocating storage space for the data;

initializing a block virtualization indicator to a value indicating that the data is not available;

writing a subset of the data to the storage space;

changing the block virtualization indicator to a value indicating that the data is available<u>, after a sufficient quantity of the data has been written to the storage space, wherein the quantity of the data that has been written to the storage space that is sufficient is a function of the access patterns of the data, and of a data type</u>;

identifying if an application performs a write that does not require a read/modify/write on a block of the data that has not yet been restored; and if so,

marking the block of the data as discarded.

38.   (new) The signal bearing medium of claim 10, wherein the operations further comprise writing an additional subset of the data to the storage space.

39.   (new) The signal bearing medium of claim 10, wherein the operations further comprise identifying portions of the data that have not been written to the storage space.

40.   (new) The signal bearing medium of claim 10 wherein the operations further comprise:

receiving a request for a part of the data that at least partially is not written to the storage

space;

retrieving and writing to the storage space the requested part of the data that is not written to the storage space; and

responding to the request for the part of the data.

41.   (new) The signal bearing medium of claim 40, wherein the requested part of the data that is not written to the storage space is retrieved on a priority basis.

42.   (new) The signal bearing medium of claim 40, wherein the operations further comprise indicating a busy condition.

43.   (new) The signal bearing medium of claim 40, wherein the operations further comprise retrieving an additional subset of the data, starting at a location sequentially after the retrieved data.

44.   (new) The signal bearing medium of claim 40, wherein the operations further comprise retrieving an additional subset of the data, starting at a location wherein data is expected to be requested next.

45.   (new) The signal bearing medium of claim 40, wherein the operations further comprise retrieving an additional subset of the data, starting at a randomly selected location.

46.   (new) The signal bearing medium of claim 10, wherein the operation of backing up the data comprises storing information identifying the storage locations of each of a plurality of blocks of the data.

47.   (new) The signal bearing medium of claim 10, wherein the operation of creating a directory entry further comprises creating a pointer for the data in the virtual file system.

48.   (new) The signal bearing medium of claim 10, wherein the data is restored from tape.

49.   (new) The signal bearing medium of claim 10, wherein the operations further comprise:

permitting the application to access requested blocks of the data, only if the application requests access to blocks of the data that have been written to the storage space.

50.   (new) The signal bearing medium of claim 10, wherein the operations further comprise:

indicating a busy condition, and writing blocks of the data for which access is requested, to the storage space on a priority basis, if the application requests access to blocks of the data that have not been written to the storage space.

51.   (new) The signal bearing medium of claim 50, wherein writing blocks of the data for which access is requested to the storage space on a priority basis comprises indicating a priority for the blocks of the data for which access is requested, in a queue of data items to be restored.

52.   (new) The signal bearing medium of claim 10, wherein the data is a file, and wherein the portion of the data is a portion of the file.

53.   (new) The signal bearing medium of claim 10:

wherein the data is restored from a first storage, and wherein the first storage is a sequential access storage; and

wherein the storage space is allocated in a second storage, and wherein the second storage is a direct access storage.

54.   (new) The signal bearing medium of claim 10:

wherein the data is restored from a first storage, and wherein the data is compressed when stored on the first storage; and

wherein the storage space is allocated in a second storage, and wherein the data is not compressed when stored on the second storage.

55.   (new) A computing system, comprising:

a memory; and

a processing device coupled to the memory, wherein the processing device is

programmed to perform operations for restoring data, the operations comprising:

tracking data access patterns for blocks of the data;

backing up the data;

wherein backing up the data includes storing with the data, data access pattern metadata obtained by tracking the data access patterns;

receiving a request for at least a portion of the data;

creating a directory entry for the data in a virtual file system;

allocating storage space for the data;

initializing a block virtualization indicator to a value indicating that the data is not available;

writing a subset of the data to the storage space;

changing the block virtualization indicator to a value indicating that the data is available, after only one block of the subset of the data has been written to the storage space;

identifying if an application performs a write that does not require a read/modify/write on a block of the data that has not yet been restored; and if so,

marking the block of the data as discarded.

56.   (new) A method for restoring data, comprising the following operations:

tracking data access patterns for blocks of the data;

backing up the data;

wherein backing up the data includes storing with the data, data access pattern metadata obtained by tracking the data access patterns;

receiving a request for at least a portion of the data;

creating a directory entry for the data in a virtual file system;

allocating storage space for the data;

initializing a block virtualization indicator to a value indicating that the data is not available;

writing a subset of the data to the storage space;

changing the block virtualization indicator to a value indicating that the data is available, after a sufficient quantity of the data has been written to the storage space, wherein the quantity of the data that has been written to the storage space that is sufficient is a function of the access

patterns of the data, and of a data type;

identifying if an application performs a write that does not require a read/modify/write on a block of the data that has not yet been restored; and if so,

marking the block of the data as discarded.